

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

What is claimed is:

1. (Previously Presented) A process for cultivating photosynthetic microbes, comprising:

selecting a species of photosynthetic microbe capable of doubling in biomass in approximately 16 hours or less when supplied with sufficient carbon dioxide in an open system that has a carrying capacity;

introducing said species into one or more closed systems;

allowing said species to grow in said closed systems to a biomass that exceeds 5% of said open system's carrying capacity;

inoculating an initial biomass of said species that is no less than 5% of said carrying capacity from said closed systems into said open system;

supplying carbon dioxide to said open system to replace carbon dioxide removed by said microbes; and

maintaining said species in said open system to double in biomass approximately every 16 hours or less for a period of less than 5 days.

2. (Original) A process according to claim 1, wherein said photosynthetic microbe is selected from the group consisting of bacteria, cyanobacteria and algae.

3. (Original) A process according to claim 1, wherein said species doubles in biomass in said open system at a rate between approximately 1.5 doublings per day and up to approximately 8 doublings per day.

4. (Original) A process according to claim 1, wherein said species doubles in biomass in said open system at a rate between at least once every 16 hours and up to once every 3 hours.

5. (Original) A process according to claim 4, further comprising removing substantially all of said species from said open system at most 5 days after said inoculating step.

6. (Original) A process according to claim 1, wherein said maintaining step is performed so that growth of said species is limited by availability of carbon dioxide.

7. (Previously Presented) A process according to claim 1, wherein said maintaining step is performed

until after said species reaches approximately 90% of said carrying capacity.

8. (Original) A process according to claim 1, wherein said supplying step is performed using stack gas from a source selected from the group consisting of the burning of a fossil fuel, the industrial production of chemicals, or the extraction of fossil fuels from geological deposits of fossil fuels.

9. (Currently Amended) A process for synthesizing oil, comprising:

selecting a species of photosynthetic microbe that doubles in biomass in approximately 16 hours or less when supplied with sufficient carbon dioxide in an open system that has a carrying capacity;

introducing said species into one or more closed systems;

culturing said species in said closed systems until said species grows to a biomass that exceeds 5% of said open system's carrying capacity;

inoculating an initial biomass of said species that is no less than 5% of said carrying capacity from said closed systems into said open system;

supplying carbon dioxide to said open system to replace carbon dioxide removed by said microbes; and

maintaining said species in said open system to double approximately every 16 hours or less for a period of less than 5 days until said species attains approximately 90% of said carrying capacity;

wherein said maintaining step is carried out with high initial nutrient concentrations but limited nitrogen availability, whereby initial conditions of high light intensity and high nutrient concentrations favor continued exponential growth for a short period, but wherein growth becomes limited by nitrogen availability which inhibits protein synthesis, whereby oil content is increased.

10. (Previously Presented) A process for culturing photosynthetic microbes, comprising:

selecting a species of photosynthetic microbe that has a growth rate of at least approximately one doubling every 16 hours when supplied with sufficient carbon dioxide in an open system having a carrying capacity;

culturing said microbe in one or more closed systems;

inoculating an open system with an amount of said microbes from said closed systems equal to approximately 5% or more of said carrying capacity;

supplying carbon dioxide to said open system to replace carbon dioxide removed by said microbes;

maintaining said microbes in said open system to grow at at least said growth rate; and

harvesting said microbes from said open system less than approximately 5 days after said inoculating step.

11. (Original) A process according to claim 10, further comprising:

maintaining said open system so growth of said microbes is limited by availability of carbon dioxide.

12. (Previously Presented) A process for creating biomass feedstock, comprising:

selecting a species of photosynthetic microbe that doubles in biomass in approximately 16 hours or less when supplied with sufficient carbon dioxide in an open system that has a carrying capacity;

introducing said species into one or more closed systems until said species grows to a biomass that exceeds 5% of said carrying capacity;

inoculating an initial biomass of said species that is no less than 5% of said carrying capacity from said closed systems into said open system;

supplying carbon dioxide to said open system to replace carbon dioxide removed by said species; and

maintaining said species in said open system to double approximately every 16 hours or less for a period of less than 5 days to create a biomass feedstock.

13. (Previously Presented) A process for using stack gas, comprising:

selecting a species of photosynthetic microbe that doubles in biomass in approximately 16 hours or less when supplied with sufficient carbon dioxide in an open system that has a carrying capacity;

introducing said species into one or more closed systems;

supplying said stack gas into said closed systems;

allowing said species to grow in said closed systems and to use said stack gas to grow to a biomass that exceeds 5% of said open system's carrying capacity;

inoculating an initial biomass of said species that is no less than 5% of said carrying capacity from said closed systems into said open system;

supplying carbon dioxide to said open system to replace carbon dioxide removed by said species; and

maintaining said species in said open system to double in biomass approximately every 16 hours or less for a period of less than 5 days.

14 -19. (Canceled).

20. (Previously Presented). A process according to any one of claims 1, 9, 10, 12 or 13, wherein said species is selected from the group consisting of *Tetraselmis suecica*, "Tetra 1" strain; *Isochrysis galbana*, "ISOCH1" strain; *Phaeodactylum tricornutum*, either strain "PHAE01" or "PHAE02"; *Nannochloropsis* sp., A. Sukenik strain; *Dunaliella primolecta*; and *Nitzschia closterium*.